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U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK DESIGN

ATTY. DOCKET NO. 7475-29603

SERIAL NO. 08/869,275

LIST OF PRIOR ART CITED BY APPLICANT

APPLICANT
Carl T. Wittwer et al.

FILING DATE June 4, 1997 GROUP 1655

U.S. PATENT DOCUMENTS							
EXAMINER INITIALS		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
MA	AA	5,585,242	12/17/96	BOUMA ET AL.	435	6	
M	AB	5,565,322	10/15/96	HELLER	435	6	
MA	AC	5,563,037	10/08/96	SUTHERLAND ET AL.	435	6	
AM	AD	5,455,175	10/03/95	WITTWER ET AL.	435	286,1	
AM	AE	5,436,134	07/25/95	HAUGLAND ET AL.	435	34	
AM	AF	5,425,921	06/20/95	COAKLEY ET AL.	422	102	
AM	AG	5,415,839	05/16/95	ZAUN ET AL.	422	64	
AM	AH	5,380,489	01/10/95	SUTTON ET AL.	422	68.1	
AM	AI	5,364,790	11/15/94	ATWOOD ET AL.	435	288	
AM	AJ	5,348,853	09/20/94	WANG ET AL.	435	6	
AM	AK	5,346,672	09/13/94	STAPLETON ET AL.	422	102	
AM	AL	5,333,675	08/02/94	MULLIS ET AL.	165	12	
M	AM	5,316,913	05/31/94	BUTCHER ET AL.	435	7.24	
AM	AN	5,240,577	08/31/93	JORGENSON ET AL.	204	180.1	
AM	AO	5,234,586	08/10/93	AFEYAN ET AL.	210	198.2	
AM	AP	5,187,084	02/16/93	HALLSBY	435	91	
AM	AQ	5,173,163	12/22/92	TEHRANI	204	299 R	<u> </u>
AM	AR	5,169,521	12/08/92	OKA ET AL.	210	198,2	
AM	AS	5,169,511	12/08/92	ALLINGTON ET AL.	204	299R	
MK	AT	5,141,621	08/25/92	ZARE ET AL.	204	229 R	
AM	AU	5,137,695	08/11/92	RUSNAK ET AL.	422	116	
AM	AV	5,131,998	07/21/92	JORGENSON ET AL.	204	299R	
1/1	AW	5,116,471	05/26/92	CHIEN ET AL.	204	180,1	
<u>am</u>	AX	5,114,551	05/19/92	HJERTEN ET AL.	204	180.1	
M	AY	5,038,852	08/13/91	JOHNSON ET AL.	165	12	
	+	-,,			1/25	298	

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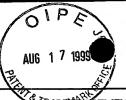
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AM	ВА	4,965,188	10/23/90	MULLIS ET AL.	435	6	
AM	вв	4,902,624	02/20/9	COLÚMBUS ET AL.	435	3/6	
AM	ВС	4,889,818	12/26/89	GELFAND ET AL.	435	194	
AM	BD	4,868,103	09/19/89	STAVRIANOPOULOS ET AL.	435	5	
AM	BE	4,865,986	09/12/89	COY ET AL.	435	290	
AM	BF	4,708,782	11/24/87	ANDRESEN ET AL.	204	299 R	
AM	BG	4,701,415	10/20/87	DUTTON ET AL.	435	289	
AM	вн	4,684,465	08/04/87	LEASEBURGE ET AL.	210	198.2	
AM	ВІ	4,683,202	07/28/87	MULLIS	435	91	
MA	BJ	4,683,195	07/28/87	MULLIS ET AL.	435	6	
DM	вк	4,675,300	06/23/87	ZARE ET AL.	436	172	
MM	BL	4,599,169	07/08/86	RAY	210	175	
AM	ВМ	4,481,405	11/06/84	MALICK	219	405	
AM	BN	4,468,423	08/28/ 84	HALL	428	72	
am	во	4,420,679	12/13/83	HOWE	219	400	
AM	BP	4,286,456	09/01/81	SISTI ET AL.	73	23.1	
AM	BQ	4,168,017	09/18/79	ANDERWALD	222	48	
Am	BR	4,038,055	07/25/77	VARANO ET AL.	59	197	
1m	BS	3,616,264	10/26/71	RAY ET AL.	195	127	
AM	BT	2,379,474	07/03/45	BRAMSON	237	3	
AM	BU	1,456,005	05/22/23	HARRIS			
AM	BV	1,006,767	10/24/11	MAUGER			
ρM	BW	5,210,015	5/11/93	GELFAND ET AL.	435	6	
AM	BX	3,219,416	11/23/65	NATELSON	23	253	

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LIST OF PRIOR ART CITED BY APPLICANT

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Carl T. Wittwer et al.

FILING DATE June 4, 1997 GROUP

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FOREIGN PATENT DOCUMENTS							
		DOCUMENT					TRANSLATION
A		NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	YES NO
AM	CA	0 640 828 A1	3/1/95	EPO, Higuelistal.			
AM	СВ	0 488 769 A2	6/3/92 11/10/01	EPO, Mossa et al.			
AM	СС	0 475 760 A2	3/18/92 99/12/91	EPO, Jorganson et al.			
AM	CD	0 459 241 A1	12/4/9/ -03/16/91	EPO, Fuels stal.			
AM	CE	0 236 069 A2	9/9/87 02/20187	EPO, Johnson et al.			
AM	CF	0 229 943 A2	7/21/87	EPO, Heller et al.			······································
AM	CG	0 566 751	10/27/93	EPO, Bannwarth et al			
AM	СН	0 636 413	2/1/95	EPO, Halletal.			
AM	CI	0 318 255	5/31/89	EPO, Columbus et al.			
AM	CI	0 674 009	9/27/95	EPO, Cottingham et al.			
AM	C K	0 404 258	12/27/90	EPO, Bonini			
AM	CL	0 686 699	12/13/95	EPO, Atwood			
AM	СМ	0 643 140	3/15/95	EPO, Yamamoto et al.			
AM	CN	3 808 942 A1	09/28/89	DE Louis et al			
AM	со	6 212 986	03/23/87	JP (Abstract)			_
AM	CP	2 122 187	8/25/72	FR			
AM	CQ	WO 95 13399	5/18/95	PCT, Tryogs et al.			
AM	CR	WO 95 21382	8/10/95	PCT, Fields			
AM	CS	WO 96 06354	2/29/96	PCT Cathey at al.			
AM	CT	WO 96 00901	1/11/96	PCT, Salum et al.			-
AM	CU	WO 95 32306	11/30/95	PCT, Wang et al.			
AM	CV	WO 95 30139	11/09/95	PCT, Woudenberg et al.			
AM	cw	WO 92 20778	11/26/92	PCT, Corbett et al.			
AM	СХ	WO 89 09437	10/05/89	PCT, Dean at al.	-		

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LIST OF PRIOR ART CITED BY APPLICANT

APPLICANT Carl T. Wittwer et al.

FILING DATE June 4, 1997

GROUP 3,505

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OTHER PRIOR ART (Including Author, Title, Pertinent Pages, Etc.)

		OTHER PRIOR ART (including Author, Title, Fertillent Fages, Etc.)		
AM	DA	Barnes, W.M., "PCR Amplification of up to 35-kb DNA with High Fidelity and High Yield from λ Bacteriophage Templates," Proc. Natl. Acad. Sci. USA, Vol. 91, pp. 2216-2220 (1994).		
SM	DB	Brown, A.B., et al., "Rapid Cycle Amplification For Construction of Competitive Templates," Genetic Engineering with PCR, Edited by: Horton, R.M., Horizon Scientific Press, Wymondham, U.K., Chap. 4 (1997)		
AM	DC	Cao, T.M., "A Simple and Inexpensive System to Amplify DNA by PCR," BioTechniques, Vol. 7, No. 6, pp. 566-67 (1989).		
Mk	DE	Cardullo, R.A., et al., "Detection of Nucleic Acid Hybridization by Nonradiative Fluorescence Resonance Energy Transfer," Proc. Natl. Acad. Sci. USA, Vol. 85, pp. 8790-94 (1988).		
AM	DF	Cotton, R. G. H, "Detection of Single Base Changes in Nucleic Acids", The Biochemical Journal, Vol. 263, pp. 1-10, October 1, 1989.		
MA	DG	Denton, P., et al., "A Low-Cost Air-Driven Cycling Oven," PCR Protocols: A Guide to Methods and Applications, Edited by M.A. Innis, et al., Academic Press, Inc., San Diego, Chap. 52, pp. 435-41 (1990).		
AM	DH	Findlay, J.B., et al., "Automated Closed-Vessel System for in Vitro Diagnostics Based on Polymerase Chain Reaction," Clinical Chemistry, Vol. 39, No. 9, pp. 1927-33 (1993).		
AM	DI	Ghosh, S.S., et al., "Real Time Kinetics of Reduction Endonuclease Cleavage Monitored by Fluorescence Resonance Energy Transfer," Nucleic Acids Research, Vol. 22, No. 15, pp. 3155-59 (1994).		
AM	DJ	Goldner, H., "PCR update: New Techniques Multiply Uses," R&D Magazine, Vol. 36, No. 4, pp. 55 (March 1994).		
MM	DK	Graham, A., "A Haystack of Needles: Applying the Polymerase Chain Reaction," Chemistry and Industry, No. 18, pp. 718 (19 September 1994).		
MA	DL	Gustafson, C.E., et al., "Effect of Heat Denaturation of Target DNA on the PCR Amplification, "Gene, Vol. 123, pp. 241-44 (1993).		
AM	DM	Higuchi, R., et al., "Simultaneous Amplification and Detection of Specific DNA Sequences," Bio/Technology, Vol. 10, pp. 413-17 (1992).		
M	DN	Higuchi, R., et al., "Kinetic PCR Analysis: Real-time Monitoring of DNA Amplification Reactions," Bio/Technology, Vol. 11, pp. 1026-30 (1993).		
PM	DO	Hillen, W., et al., "High Resolution Experimental and Theoretical Thermal Denaturation Studies on Small Overlapping Restriction Fragments Containing the Escherichia coli Lactose Genetic Control Region," The Journal of Biological Chemistry, Vol. 256, No. 6, pp. 2761-2766 (1981).		
am	DP	Hiyoshi, M., et al., "Assay of DNA Denaturation by Polymerase Chain Reaction-Driven Fluorescence Resonance Energy Transfer," Analytical Biochemistry, Vol. 221, pp. 306-11 (1994).		
AM	DQ	Hoffman, L.M., et al., "Use of a Gas Chromatograph Oven for DNA Amplification by the Polymerase Chain Reaction," BioTechniques, Vol. 6, No. 10, pp. 932-36 (1988).		
MM	DR	Holland, P.M., et al., "Detection of Specific Polymerase Chain Reaction Product by Utilizing the 54 3' Exonuclease Activity of Thermus Aquaticus DNA Polymerase," Proc. Natl. Acad. Sci. USA, Vol. 88, pp. 7276-80 (1991).		
AM	DS	Hopfenbeck, J.A., et al., "Digoxigenin-Labeled Probes Amplified from Genomic DNA Detect T-Cell Gene Rearrangements," American Journal of Clinical Pathology, Vol. 97, No. 5, pp. 638-44 (1992).		
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U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE ATTY. DOCKET NO. SERIAL NO. PTO-1449 7475-29603 08/869,275 APPLICANT Carl T. Wittwer et al. LIST OF PRIOR ART CITED BY APPLICANT 1655 FILING DATE **GROUP** June 4, 1997 **330**5

		OTHER PRIOR ART (Including Author, Title, Pertinent Pages, Etc.)
MΜ	DY	Ishiguro, T., et al., "Homogeneous Quantitative Assay of Hepatitis C Virus RNA by Polymerase Chain Reaction in the Presence of a Fluorescent Intercalater," <u>Analytical Biochemistry</u> , Vol. 229, pp. 207-13 (1995).
AM	DZ	Kang, J., et al., "Exact Quantification of DNA-RNA Copy Numbers by PCR-TGGE," PCR Strategies, Academic Press, Inc., Chap 15, pp. 189-98 (1995).
MM	EA	Ke, S., et al., "Influence of Nearest Neighbor Sequence on the Stability of Base Pair Mismatches in Long DNA: Determined by Temperature-Gradient Gel Electrophoresis," Nucleic Acids Research, Vol. 21, No. 22, pp. 5137-43 (1993).
ŊΜ	EB	Lee, L.G., et al., "Allelic Discrimination by Nick-Translation PCR with Fluorogenic Probes," Nucleic Acids Research, Vol. 21, No. 16, pp. 3761-66 (1993).
pm	EC	Linz, U., "Thermocycler Temperature Variation Invalidates PCR Results," Biotechniques, Vol. 9, No. 3, pp. 286-90 (1990).
MA	ED	Livak, K.J., et al., "Oligonucleotides with Fluorescent Dyes at Opposite Ends Provide a Quenched Probe System Useful for Detecting PCR Product and Nucleic Acid Hybridization," PCR Methods and Applications, Vol. 4, pp. 357-62 (1995).
AM	EE	Livak, K.J., "Quantitation of DNA/RNA Using Real-Time PCR Detection," Perkin-Elmer Applied Biosystems Report (1996).
AM	EF	Morrison, L.E., "Detection of Energy Transfer and Fluorescence Quenching," Nonisotopic DNA Probe Techniques, Edited by: Larry J. Kricka, Academic Press, Inc., San Diego, Chap. 13, pp. 311-52 (1992).
AM	EG	Morrison, L.E., et al., "Sensitive Fluorescence-Based Thermodynamic and Kinetic Measurements of DNA Hybridization in Solution," <u>Biochemistry</u> , Vol. 32, pp. 3095-3104 (1993).
M	ЕН	Nilsson, P., et al., "Real-Time Monitoring of DNA Manipulations Using Biosensor Technology," <u>Analytic Biochemistry</u> , Vol. 224, pp. 400-408 (1995).
MA	EI	Oste, C.C., "PCR Instrumentation: Where Do We Stand?," <u>The Polymerase Chain Reaction</u> , Edited by Mullis, et al., Birkhauser, Boston, Chap. 14 (1994).
	EJ	Perry, R.H., et al., "Heat Transmission by Radiation," Chemical Engineers' Handbook, 5th ed., McGraw-Hill Book Co., New York, Chap. 10, pp. 48-56 (????).
MM	EK	Ririe, K.M., et al., "Product Differentiation by Analysis of DNA Melting Curves during the Polymerase Chain Reaction," Analytical Biochemistry, Vol. 254, pp. 154-160 (1997).
AM	EL	Segal, G.H., et al., "Identification of Monoclonal B-cell Populations by Rapid Cycle Polymerase Chain Reaction," The American Journal of Pathology, Vol. 141, No. 6, pp. 1291-97 (1992).
AM	ЕМ	Service, R.E., "The Incredible Shrinking Laboratory: Microchips Allow Miniaturization of Analytical Laboratories," Science, Vol. 268, No. 5207, pp. 26 (7 April 1995).
AM	EN	Stimpson, D.I., "Real-time Detection of DNA Hybridization and Melting on Oligonucleotide Arrays by Using Optical Wave Guides," Proc. Natl. Acad. Sci. USA, Vol. 92, pp. 6379-83 (1995).
DM	ЕО	Swerdlow, H., et al., "Fully Automated DNA Reaction and Analysis in a Fluidic Capillary Instrument," Anal. Chem., Vol. 69, pp. 848-855 (1997).
AM	EP	Tombler, E.R., et al., "Spectrofluorometric Assay for Hybridization of Oligodeoxynucleotides Using Ethidium Dimer," BioTechniques, Vol. 15, No. 6, pp.1060-64 (1993).

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LIST OF PRIOR ART SITED BY APPLICANT			APPLICANT Carl T. Wittwer et al.				
		AUG 1 7 1999 65	FILING DATE June 4, 1997	GROUP 1655			
	CE.	Tyagi, S., et al., "Molecular Beacons: Pro	Author, Title, Pertinent Pages, Etc.	c.)			
AM	EQ	Tyagi, S., et al., "Molecular Beacons: Pro (1996).	bes that Fluoresce upon Hybridization, "Na	ture Biotechnology, Vol. 14, pp. 303-08			
MR	ER	Weis, J.H., et al., "Detection of Rare mRI (1992).	NAs via Quantitative RT-PCR," <u>Trends in C</u>	enetics, Vol. 8, No. 8, pp. 263-64			
MM.	ES	Wilding, et al., "PCR in Silicon Microstru	cture," Clinical Chemistry, Vol. 40, No. 9,	pp. 1815-18. (1994).			
	ET		hy," Instrumental Methods of Analygis, 6th				
AM	EU	Wittwer, C.T., et al., "Minimizing the Tin	Wittwer, C.T., et al., "Minimizing the Time Required for DNA Amplification by Efficient Heat Transfer to Small Samples, Analytical Biochemistry, Vol. 186, pp. 328-31 (1990).				
AM	EV	Wittwer, C.T., et al., "Automated Polymer Vol. 17, No. 11, pp. 4353-4357 (1989).	Wittwer, C.T., et al., "Automated Polymerase Chain Reaction in Capillary Tubes with Hot Air." Nucleic Acids Research				
AM	EW	Wittwer, C.T., et al., "Rapid Cycle DNA 1, pp. 76-83 (1991).	Wittwer, C.T., et al., "Rapid Cycle DNA Amplification: Time and Temperature Optimization." BioTechniques, Vol. 10, No.				
SM	EX	Wittwer, C.T., et al., "Rapid Cycle Allele- Chemistry, Vol. 39, No. 5, pp. 804-809 (1	Specific Amplification: Studies with the Cys. 993).	stic Fibrosis ΔF ₅₀₈ Locus, <u>" Clinic</u> al			
AM	EY	Wittwer, C.T., et al., "Rapid Cycle DNA A Birkhauser, Boston, Chap. 15 (1994).	Amplification, "The Polymerase Chain Reac	tion, Edited by: Mullis, et al.,			
AM	EZ	Wittwer, C.T., et al., "Continuous Fluores pp. 130-138 (1997).	Wittwer, C.T., et al., "Continuous Fluorescence Monitoring of Rapid Cycle DNA Amplification." BioTechniques, Vol. 3				
M	FA	Wittwer, C.T., et al., "The LightCycler: A BioTechniques, Vol. 22, pp. 176-181 (199	Microvolume Multisample Fluorimeter witl 7).	n Rapid Temperature Control,"			
AM	-FB	Wittwer, C.T., et al., "Fluorescence Monit Ferre, F., Birkhauser, Boston (1997).	oring of Rapid Cycle PCR For Quantification	on, <u>" Gene Quantificatio</u> n, Edited by:			
am	FC	Yguerabide, J., et al., "Quantitative Fluores a Fluorescent Intercalator," Analytical Bioc	scence Method for Continuous Measuremen hemistry, Vol. 228, pp. 208-20 (1995).	t of DNA Hybridization Kinetics Using			
AM	FD	Biotherm Corporation Advertisement, BioO					
am	FE	Ericomp Advertisement, Twinblock System					
AM	FF	Techne Advertisement, PHC-1 Dri-Block (
AM	FG		Hybaid Advertisement, Hybaid Heating and Cooling Block (1988).				
AM	FH		Eppendorf Advertisement, Eppendorf MicroCycler (1988).				
AM	FI	COY Advertisement, Tempcycler Model 50					
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LIST C	F PRI	OR ART CITED BY APPLICANT	APPLICANT Carl T. Wittwer et al.			
		NII6 1 7 1999 55	FILING DATE June 4, 1997	GROUP 1655		
		TRADESTHER PRIOR ART (Including	g Author, Title, Pertinent Pages, Et	2.)		
AM	FJ	Idaho Technology Advertisement and Spe	ecification Sheets for 1605 Product (1991).			
DM	FK	Perkin-Elmer Advertisement, ABI Prism	7700 Sequence Detection System (1991).			
AM	FL	Clark, et al., "Cassettes Simplify Small-sa	imple Dialysis," R&D Magazine, p.31, Sept	ember 1995.		
AM	FM		"Let the Microchip Fall Where Diagnostics Lies: Implications: A Diagnostic Revolution?," Genesis Report-Dx, Vol. 4, No. 3			
AM	FN	"Let the Microchip Fall Where Diagnostic 3 (1994).	es Lies: Implications: Affymetrix: DNA on a	Chip," Genesis Report-Dx, Vol. 4, No.		
AM	FO	"PCR Detection Blows Cover on Lyme D	isease, Q Fever," Biotechnology Newswatch	, Vol. 10, No. 1 (Jan. 1, 1990).		
AM	FP	Schoffner et al., "Chip PCR. I. Surface po Vol. 24, No. 2, pp. 375-379, 1996.	assivation of microfabricated silicon-glass ch	ips or PCR", Nucleic Acids Research,,		
AM	FQ	Cheng et al., "Chip PCR. II. Investigation Nucleic Acids Research, Vol. 24, No. 2,	n of different PCR amplification systems in n pp. 380-385, 1996.	nicrofabricated silicon-glass chips",		
	FR	Operation manual for HP 5880A Gas Chr	omatograph			
am	FS	Operation manual for the MIC 6000 J.	an, 1987			
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